

TWIN RIVERS CANYON RESORT (PWSNO 1110047) SOURCE WATER ASSESSMENT REPORT

November 5, 2002



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR TWIN RIVERS CANYON RESORT

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Twin Rivers Canyon Resort, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Twin Rivers Canyon Resort* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Twin Rivers Canyon Resort is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. An 8-inch cased well provides drinking water for Twin Rivers Canyon Resort. The water system serves 53 connections for an RV park, camping and picnic areas and a residence located near the confluence of the Moyie and Kootenai Rivers near Moyie Springs, Idaho. The well was drilled in 1990 to a depth of 60 feet. The well casing extends from 18 inches above ground to a depth of 30 feet. The casing terminates at the transition between alluvial material and bedrock. The remaining depth of the well is in uncased shale. The 18-foot deep surface seal terminates in a layer of gravel and boulders. Current well construction standards (IDAPA37.03.09) require the surface seal to extend into the consolidated formation. When the well was drilled, ground water was first encountered in a sand and gravel seam 28 to 30 feet below the surface. Another water-bearing level lies in soft shale 54 to 55 feet below ground. The static water level is 16 feet below ground surface and the well produces about 65 gallons per minute.

Twin Rivers Canyon Resort was mostly in compliance with the *Idaho Rules for Public Drinking Water Systems* when it was inspected in December 1997. A note in the public water system file for the resort indicates that required improvements were undertaken in the winter of 1997-1998.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineation. Soils in the well recharge zone for The Twin Rivers Canyon Resort well are generally poorly drained to moderately well drained. Soils in these drainage classes provide some protection against migration of contaminants toward the well. At the well site, gravel and sand predominate in the soil column above the water table. 1 foot of clay mixed with gravel lie immediately above the first water-bearing stratum.

Potential Contaminant Inventory. Land inside the protection zone delineated for Twin Rivers Canyon Resort is mostly forested and used for recreational purposes. Illegal dumping and other misuse of resort facilities has some potential for introducing contaminants into the area around the well. Septic tanks and four drainfields provide sanitation for the resort with the nearest drainfield about 425 feet south of the well. Surface water is the only other potential source of contamination documented inside the 1000-foot radius delineated for the Twin Rivers Canyon Resort well. The well is about 150 feet south of the river and needs to be evaluated for possible surface water influence.

Water Quality History. Twin Rivers Canyon Resort has had no water quality problems. Samples tested for the presence of total coliform bacteria have all been negative. Annual tests for nitrates show concentrations ranging from 0.041 to 0.306 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10.0 mg/l.

Susceptibility to Contamination. An analysis of the Twin Rivers Canyon Resort well, incorporating information from the public water system file and the potential contaminant inventory ranked the well moderately susceptible to all classes of regulated contaminants. Risk factors related to local geology added the most points to the final susceptibility scores. The complete analysis worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Continuing to operate and maintain the well in conformance with the *Idaho Rules for Public Drinking Water Systems* is the best drinking water protection tool available to Twin Rivers Canyon Resort. In addition to required testing and maintenance, there are a number of voluntary measures water systems can take to protect their wells.

Because the well is near the tent area and one of the resort roads, it might be helpful to fence the area around the well and well control vault to discourage unauthorized access. Every public water system should develop an emergency response plan. There is a simple form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

The resort should also investigate ground water protection programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Because the resort5 does not have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighboring landowners and public agencies to regulate land uses that can degrade ground water quality. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

DEQ website: <http://www.deq.state.id.us>

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

Legend

Well	SECC Site	ACT
Building	Business Meeting List	Recharge Point
Road	Duty	SARA Title IX Site (EPCRA)
1000 Foot Buffer Zone	UST Site	Injection Well
Blow	UST Site	Drum Site
Enhanced Inventory	Closed	Cyanide Site
Toxic Release Inventory	Open	Landfill
CRCLIS Site	SPDES Site	Waterless Landfill Site

PWS # 1110047
Twin Rivers Canyon Resort
Well

Ground Water Susceptibility

Public Water System Name :

TWIN RIVERS CANYON RESORT

Well :

WELL

Public Water System Number :

1110047

10/29/02 10:01:09 AM

1. System Construction		SCORE			
Drill Date	8/31/90				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1997				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	CASING YES, SEAL NO	1			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	GRAVEL	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	RECREATION	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Potential Contaminant Source/Land Use Score		2	2	2	2
Potential Contaminant / Land Use 1000-Foot Radius					
Contaminant sources present (Number of Sources)	RV PARK & CAMPGROUND	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-Foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score 1000-Foot Radius		3	3	3	2
Cumulative Potential Contaminant / Land Use Score		5	5	5	4
4. Final Susceptibility Source Score		8	8	8	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
 6 - 12 Moderate Susceptibility
 > 13 High Susceptibility